"Throw a koala on the barbie" (*Daily Telegraph* 15 July 1997): an analysis of wildlife reporting in two daily newspapers

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ABSTRACT

We undertook an analysis of wildlife reporting in the *Sydney Morning Herald* and the *Daily Telegraph* over a year to October 1997 to determine which species and issues were the favourites, what were the angles, context and language of the presentation, and how scientists, especially zoologists, fared in the reporting. The following conclusions were drawn: there was a sustained media interest in animals; animal welfare was the dominant theme; risk to humans was the second most important issue; and although scientists were consistently mentioned, science as a subject had only a low profile in the daily papers. Australian animals, rather than international animals and issues, dominated the reporting. Mammals received most attention, followed by birds, reptiles and fish. Invertebrates were poorly represented and most mentions of these were hostile. There was a select group of journalists who serve zoologists and zoology well, and zoologists wanting to share their research with the general public were given scope beyond the sensational and human-interest stories.

Introduction

"Throw a koala on the barbie" was a minor headline in the *Daily Telegraph* of 15 July 1997. The article advanced the proposition that we should be eating our native wildlife. Does it catch your attention? What is your response to it? In this paper we consider its meaning, its relevance to conserving wildlife and the relationship of wildlife to the print media.

The headline reflects a combination of two major themes in the modern press: human-interest stories and sensationalism. This style, argues Barrat (1986), is a result of the free press of the 19th century, with its ideals of unfettered political news and social comment, succumbing to the pressure of advertisers appealing to a predominantly middle-class audience. So where do zoologists fit into this picture?

In our world of endeavouring to conserve biodiversity through research, we are keen to see our findings, and those of our colleagues, spread beyond our study sites and scientific seminars to a broader audience. With well over a million readers per day between them, the two major daily papers in NSW, the *Daily Telegraph* and the *Sydney Morning Herald,* are a major source of wildlife information and ideas to most people. What really interested us was to know whether wildlife reporting in the print media went beyond the sensational and human-interest stories to incorporate social comment and express politically challenging ideas, such as those necessary to conserve biodiversity.

As zoologists with an ecological outlook, we enjoy searching for patterns in nature, particularly those underlying the changes in the wildlife populations of NSW. We are also intrigued by the way the media presents wildlife. It reflects the public response to our wildlife, both attraction and repulsion. In this paper, our aims were to determine which species and issues were the favourites, what were the angles, context and language of the presentation, and how scientists, especially zoologists, fared in the reporting.[1]

Do some species get more attention than others? We keep hearing about those dreadful koalas that get too much of a run in the media. Is it true? If so, why? We are acutely aware of the hostility of many invertebrate workers to the hegemony of koalas, and other charismatic megafauna, in the media and we are also aware of the ecological importance of the other 99% of animals that don't get a mention – the invertebrates. What can be done about this?

In the month following the Royal Zoological Society forum on zoology and the media, the Australian Museum hosted a major national forum on invertebrate conservation and biodiversity (Ponder and Lunney 1999). At this conference, broadcaster Richard Smith (1999) recognised that: "... even in this current age of scientific enlightenment our spineless invertebrate cousins are still being ignored and despised...Not only do the prejudices of the general public have to be overcome, but so too the negative preconceptions of those in editorial and financial control of the [media] outlets." We have undertaken a review of two daily newspapers to seek details and form some impressions of this bias in biodiversity reporting. We chose one year, the year to October 1997, the year preceding the Zoology and the Media forum.

We were well aware, as wildlife ecologists working for a state fauna authority, that there is a human dimension in the portrayal of species and issues. Purely curiosity-driven

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[1] We updated this piece in January 2003 to refer readers to subsequent publications by the Royal Zoological Society of NSW that picked up themes we identified in the newspaper items prior to the Zoology and the Media forum in October 1997, in which this paper was originally presented.

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zoological research can be carried on in some quiet places in museums, universities, and at home, but most wildlife conservation endeavours include the community, other state government departments, and local and federal governments. This in itself imposes a species and issues bias because of the need to convert science into policy (Lunney 1999). For example, in this context, pest species are always newsworthy and threatened species became a major issue in NSW following the listings under the initial NSW Act, the *Endangered Fauna (Interim Protection) Act 1991* (Lunney *et al.* 1996).

Since we work in the Biodiversity Research and Management Division, we also wanted to find out whether zoology was portrayed in the print media as a distinct component in the reporting. Since we are concerned that our professional interests be reported intelligently, especially the role of research in resolving the complex issues of conserving wildlife, we also paid attention to the methods of the journalists.

Wildlife stories usually need some interpretation. This requires skill, a keen interest in the human-wildlife world and a sense of the landscape of Australia and its environmental and cultural history. For example, the carcase of a wild pig, a flying-fox and a dolphin will each evoke a different response. The ecological issues surrounding the conservation of biodiversity, as well as the political sensitivities it elicits, need to be known to the journalist. Without such a background, there will be no story of substance. We searched for such depth of reporting and how issues were dealt with in various articles, and considered how the newspapers presented individual stories. This is the raw material of any study of semiotics, which is the study of signs or codes within a text or a photo or the juxtaposition of the two. Similarly, zoologists also look for signs – footprints in sand pads, or the shape of faecal droppings on tracks, or the presence of hair in the scats (droppings) of predatory dogs and foxes. Since the science of signs seems to us like a natural corollary to our own discipline, the apparently straight-forward meaning conveyed in the written word of an item in the newspaper can be examined for its veiled meaning. Thus it was not difficult to search for coded meanings in the articles published in the print media. It was even fun carrying out this search, and it has given us some new insights into the world of wildlife and the media, which we would like to share with you.

A bird's eye view

Our first step was content analysis. This was essentially a counting exercise to give us a bird's eye view of what was present. As we are NSW research ecologists, we kept the focus at a state level by examining the two largest daily papers in NSW, classifying each article by themes, such as animal welfare, the species involved and the content of any accompanying photograph. We included articles about introduced species gone wild because of their importance to conserving biodiversity. In recognition of the annual cycles of many species we decided to extend the search period to a year. We rejected articles on forestry struggles, uranium mining or climate change if wildlife was not expressly mentioned. We also included a small number (6) of letters to the paper.

We collated 150 articles from 103 days in the year to October 1997: 107 articles from the *Sydney Morning Herald* and 43 from the *Daily Telegraph*. This yielded an average of about two articles per week for the *Sydney Morning Herald* and nearly one per week in the *Daily Telegraph*. The articles were mostly authored, but some small items of about a paragraph in length were published without an author. Forty different authors contributed to the articles in our sample. The articles were usually less than half a page in size (Table 1). The proportion of a page occupied by an article was taken as a major component in attracting attention. The next level of analysis would be to estimate word count, but we took size, as estimated by proportion of a page, to be a good prime indicator of relative importance of an article. About 9% of articles were half a page or larger and these were often accompanied by an illustration. The largest were accompanied by photographs. Most articles (138) were reports on vertebrates. Only 9% reported on invertebrates and 3% covered both as they were discussing all-species issues.

Table 1 The size of wildlife articles in a sample from two daily newspapers over the year to October 1997.

Article size	no. of articles	% of articles
10% or Less of a Page	88	59%
Between 10% and 50% of a Page	49	33%
50% or More of a Page	13	9%

The greatest number of articles (53%) was on mammals, followed by birds (17%), reptiles (11%) and then fish (9%) (Table 2). The other taxa were infrequently reported. Some species featured much more than others, with koalas topping the list at eight articles (Table 3). Snakes, Australian fur seals, humpback whales, magpies and rabbits were also mentioned, as were whales in general. Most articles were about native species (112), while the remainder covered feral (9 articles), introduced (2 articles) and captive species (3 articles).

Table 2 Taxa reported in articles in a sample from two daily newspapers over the year to October 1997.

Taxa	no. of articles	% of articles
Frogs	2	1%
Spiders	2	1%
Birds	25	17%
Crustaceans	2	1%
Fish	13	9%
Insects	4	3%
Mammals	80	53%
Molluscs	1	1%
Reptiles	17	11%
All	4	3%

Table 3 Species commonly reported in a sample of wildlife articles from two daily newspapers over the year to October 1997.

Common species	no. of articles
Koala	8
Snakes	5
Australian Fur Seal	4
Humpback Whale	4
Magpie	4
Rabbit	4
Whales	4

Of the 80 articles on mammals, 25 (31%) were about marine mammals and of the 25 bird articles, 11 (46%) were on seabirds. There are several explanations as to why marine birds and mammals feature more than others. The species that featured were large, they readily filled a photograph, and the animals were those which interact with humans. The majority of wildlife articles concerned Australian animals and issues; only 2% of articles covered international issues.

We identified both primary and secondary issues (Table 4) in each article. What emerged was that animal welfare was by far the most popular issue reported in the media. The next was human risk, such as a snake attack or spiders. Commercial use of native species was also high, as were legal/legislative issues, followed by conservation and environment and research. We also counted the number of times a scientist was mentioned. Of the 150 articles, 46 reported a scientist being involved. Of these, a biologist was specifically mentioned in only 13. We concluded that science really had a low profile in the newspaper articles about wildlife. We also looked at the writer's attitude towards the animal subject (Table 5). Most articles (109) were positive in their attitude towards the animal being reported, but 25 articles were negative; these were on species such as magpies (4 articles), mosquitoes (3 articles), rabbits (3 articles), snakes (2 articles) and spiders (2 articles).

Photos were a significant component of the story, especially if there was a human interaction. Many wildlife articles were accompanied by an illustration, with 53 of them – almost a third – accompanied by black and white photos, six supported with colour photographs and some with just diagrams or cartoons (Table 6). We then looked at the photographs to see what was being portrayed. Of 56 photographs of animals, 45 showed live animals, 10 showed dead animals and one photograph showed both living and dead animals. Most importantly, 70% of the photographs depicted the animal interacting with people. Examples include a photo of a pelican being held by a wildlife carer; fishermen capturing dolphins; and a researcher Nick Carlile with a rare seabird in his hand. The photo of Nick Carlile standing on the top of the mountain where the birds were breeding presented a strong visual image.

Table 4 Issues covered in wildlife articles in a sample from two daily newspapers over the year to October 1997.

Issue	primary issue (no. Articles)	secondary issue (no. Articles)	total
Animal Welfare	30	4	34
Human Risk	17	4	21
Commercial Use	6	12	18
Legal/Legislation	10	8	18
Conservation	6	7	13
Environment	3	8	11
Research	6	5	11
Pest Control/Management	6	3	9
Sighting	9	0	9
Education	0	5	5
Endangered	0	5	5
Natural History	0	5	5
Captive Breeding	4	0	4
Discovery	4	0	4
Population Decline	4	0	4
Tourism	0	4	4

Table 5 Attitude towards the animal reported in a sample of wildlife articles from two daily newspapers over the year to October 1997.

Attitude towards animal	no. of articles
Positive	109
Negative	25
Neutral	15
Both	1

Table 6 Type of illustration accompanying wildlife articles in a sample from two daily newspapers over the year to October 1997.

Illustration	no. of articles
Black and White Photograph	53
Colour Photograph	6
Diagram	2
Cartoon	6
None	83

Killing, consuming or conserving wildlife: a detailed look at selected newspaper items

General conclusions from statistics can only reveal trends and provide feedback on dominant issues and themes, so the next step in our analysis was to examine individual newspaper items to find the print media favourites. A careful reading of a selection of clippings provided an intriguing insight into their content and presentation style.

With the caption, "Tourists pander to a koala at the Pennant Hills park yesterday", a large photo shows young tourists in the foreground and a koala sitting on a horizontal beam looking at the photographer. The article's headline continues the pun with, "Our $1.1 bn icon bears up well." The article by Rosalie Mathieson in the *Daily Telegraph* of 15 July 1997 summarises a study by the University of Queensland and the Australia Institute into the value of koalas to Australian tourism. After a short dose of economic figures, the article concludes aptly by quoting a Singaporean student saying, "We love them – they're simply, simply, simply, simply irresistible."

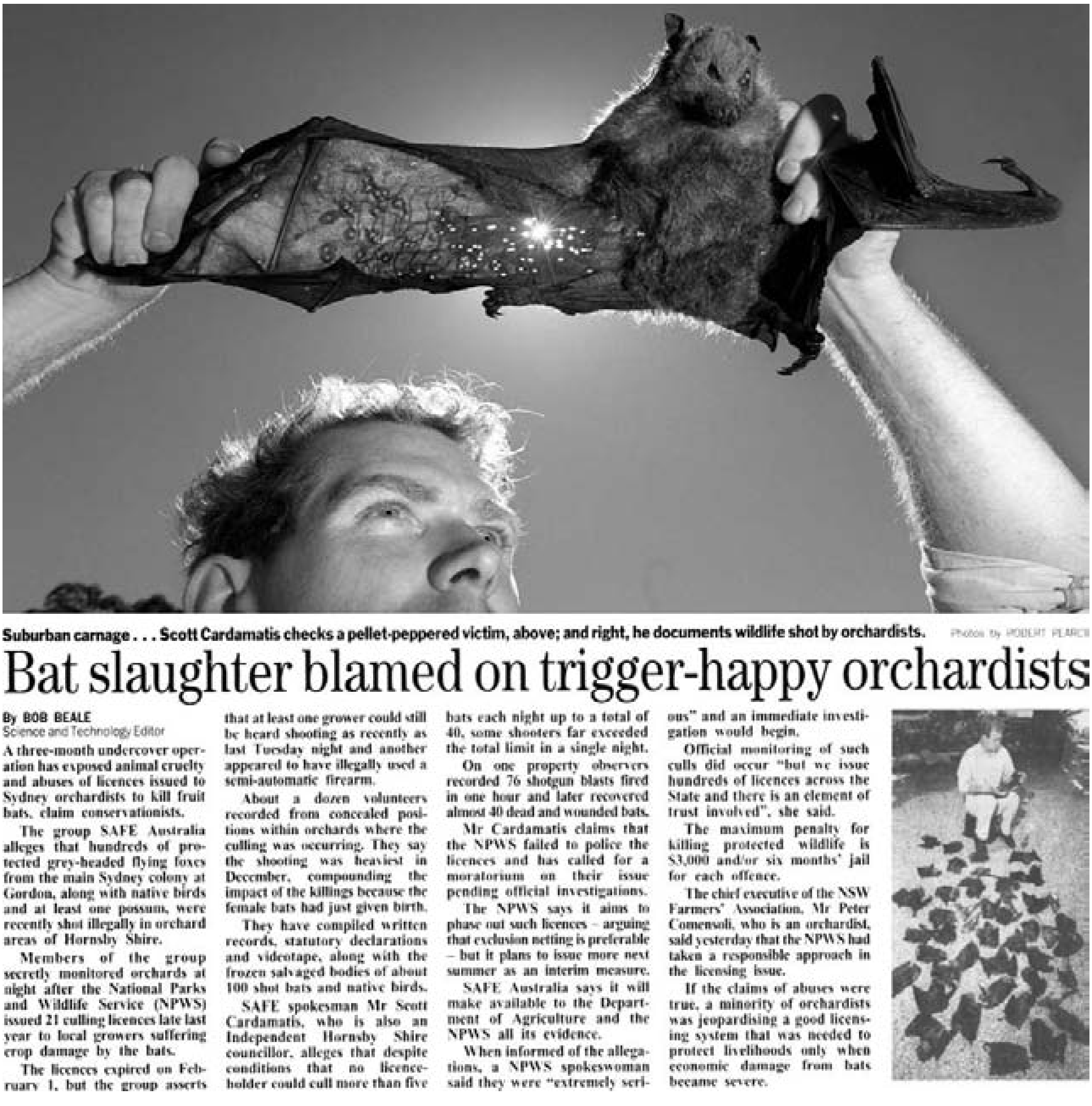
One striking inset in the article, that had little to do with the ground-breaking economic study (you can find the full text of the economic study in Hundloe and Hamilton 1997), is a short piece entitled, "Throw a koala on the barbie." The text is remarkable: "A wide range of Australian native animals and birds could be successfully harvested for food as a sustainable resource, Australia's top environmental officer said yesterday. Professor Joe Baker, head of the Canberra-based Commission for the Environment, said Australia had fallen for the trap of developing its food chains along European lines despite the continent having a vastly different climate. 'Why can't I sit down to a koala steak or a breast of sulphur-crested cockatoo?' he asked at a Compost '97 conference in Brisbane." The insert is brave and does reflect some strong ideas already circulating on this subject (e.g. Grigg *et al.* 1995) and presages others (Archer 2002, Grigg 2002).

This article, with its clear photo, took half a page of the paper and encompassed human interest, big dollars and controversy. The text was one third of the item, with the photo taking two-thirds of the space. Further, the koala occupied half the photo and the tourists the other half. The picture-postcard style of the photo clearly fits the content of the article, i.e. valuable tourist attraction, but one can also discern that the familiar koala image has enabled a second powerful message – eating native fauna – to be introduced in this piece.

A parallel theme to eating native wildlife is the theme of hunting wildlife for profit. An article on it appeared, without a photo, in a small article by James Woodford in the *Sydney Morning Herald* 6 June 1997 in a piece entitled "Hunting and gathering skills to turn a profit". Woodford wrote that "Aborigines will be able to establish trophy hunting, wildflower and bush tucker businesses under a radical 'economic empowerment' strategy launched yesterday by the Federal Government." By contrast, a tiny, unauthored item titled "Roo meat rejected" which appeared in the *Sydney Morning Herald* 10 October 1997 described how a second British supermarket chain "had decided against selling kangaroo and other exotic meats in its stores because of customer concerns about animal welfare." These two issues are related. Any profit to an Aboriginal community may be affected by the ban on sales of kangaroo meat because of animal rights concerns. Here we distinguish animal welfare from the philosophically driven animal rights/animal liberation lobby, which carries a vegetarian stance. In turn, this raises the issue of environmental justice, e.g. who carries the cost of bans. These are matters for much debate, but that debate needs the range of reporting seen in this seemingly minor and apparently unrelated items. For the wildlife manager, they convey much meaning and potentially underpin or undermine new programs, or sideline others without even a debate. Such is the power of the public perception, especially of wildlife welfare. It is here that the experienced journalist has much to contribute by seeing the point of the matter and reporting accordingly.

The animal welfare issue arises in many spheres. In a large, half page article by Russell Skelton entitled, "The killing of the sea's majestic marauders at dawn" (*Sydney Morning Herald* 16 November 1996) there is huge photo of dolphins writhing in a fishing net. The caption to the two photos is blunt: "In for the kill as day breaks…water turns to blood-red as fishermen herd in dolphins cut on fishing nets and (right) the head of a bottle-nosed dolphin, cut off with a chainsaw, lies in a basket." The sub-title of the article points to the issue at stake: "Japan has been condemned over whale hunting. Now it is allowing dolphin hunting." The more obvious orientation of the piece is animal welfare, but the real point is the criticism of the commercial hunting of whales and dolphins. It does feature the sea, and a big mammal. It is a good combination of points for a newspaper, especially as it also contains a dispute as to whether it is justifiable. The article states that, "Local government authorities gave in to pressure from local fishermen to permit the kill." The explanation offered was that, "Japanese fisherman needed to cut back on dolphin numbers, he [a spokesman for the Department of Fisheries] said, because there were too many and they depleted fish stocks in the Sea of Japan." The text of this article does not allow us to judge the merits of each viewpoint, but it does suggest that there are many layers of argument, such as the fishermen want to cull dolphins to prevent their depredations on fish stock, but the issue may be the value of the dolphins themselves in the market place. The photos suggest that animal welfare is a major concern, and the photo of head of the dolphin that had been severed by a chain saw is undoubtedly a statement that is meant to shock readers. Whatever wildlife management issues are at stake, it is evident that such conflict involving the deliberate death of big sea mammals is seen as highly newsworthy.

A parallel item, with a great pair of photos by Robert Pearse, with the caption, "Suburban carnage…Scott Cardamatis checks a pellet-peppered victim, above; and right, he documents wildlife shot by orchardists." The main photo has a Grey-headed Flying-fox held above the head with the wing stretched out and the sun shining through the bullet holes in the membranous wings (Figure 1). The smaller photo has the dark form of about 50 dead



Suburban carnage . . . Scott Cardamatis checks a pellet-peppered victim, above; and right, he documents wildlife shot by orchardists. Photos by ROBERT PEARCE

Bat slaughter blamed on trigger-happy orchardists

By BOB BEALE
Science and Technology Editor

A three-month undercover operation has exposed animal cruelty and abuses of licences issued to Sydney orchardists to kill fruit bats, claim conservationists.

The group SAFE Australia alleges that hundreds of protected grey-headed flying foxes from the main Sydney colony at Gordon, along with native birds and at least one possum, were recently shot illegally in orchard areas of Hornsby Shire.

Members of the group secretly monitored orchards at night after the National Parks and Wildlife Service (NPWS) issued 21 culling licences late last year to local growers suffering crop damage by the bats.

The licences expired on February 1, but the group asserts that at least one grower could still be heard shooting as recently as last Tuesday night and another appeared to have illegally used a semi-automatic firearm.

About a dozen volunteers recorded from concealed positions within orchards where the culling was occurring. They say the shooting was heaviest in December, compounding the impact of the killings because the female bats had just given birth.

They have compiled written records, statutory declarations and videotape, along with the frozen salvaged bodies of about 100 shot bats and native birds.

SAFE spokesman Mr Scott Cardamatis, who is also an Independent Hornsby Shire councillor, alleges that despite conditions that no licence-holder could cull more than five bats each night up to a total of 40, some shooters far exceeded the total limit in a single night.

On one property observers recorded 76 shotgun blasts fired in one hour and later recovered almost 40 dead and wounded bats.

Mr Cardamatis claims that the NPWS failed to police the licences and has called for a moratorium on their issue pending official investigations.

The NPWS says it aims to phase out such licences – arguing that exclusion netting is preferable – but it plans to issue more next summer as an interim measure.

SAFE Australia says it will make available to the Department of Agriculture and the NPWS all its evidence.

When informed of the allegations, a NPWS spokeswoman said they were "extremely serious" and an immediate investigation would begin.

Official monitoring of such culls did occur "but we issue hundreds of licences across the State and there is an element of trust involved", she said.

The maximum penalty for killing protected wildlife is $3,000 and/or six months' jail for each offence.

The chief executive of the NSW Farmers' Association, Mr Peter Comensoli, who is an orchardist, said yesterday that the NPWS had taken a responsible approach in the licensing issue.

If the claims of abuses were true, a minority of orchardists was jeopardising a good licensing system that was needed to protect livelihoods only when economic damage from bats became severe.

Figure 1 Striking photos and arresting text reporting on wildlife in a major daily newspaper. Note the human/animal interactions, the sense of animal welfare as an issue and human conflict as an important theme. The article and photos reproduced from the *Sydney Morning Herald* with permission of the SMH and the journalist.

flying-foxes spread out on light coloured ground and one carcase in the hand, with notes being taken on details. This article by Bob Beale in the *Sydney Morning Herald* 5 April 1997 was entitled, "Bat slaughter blamed on trigger-happy orchardists". It opens with the statement, "A three-month undercover operation has exposed animal cruelty and abuses of licences issued to Sydney orchardists to kill fruit bats, claim conservationists. The group SAFE Australia alleges that hundreds of protected grey headed flying foxes from the main Sydney colony at Gordon, along with native birds and at least one possum, were recently shot illegally in orchard areas of Hornsby Shire. Members of the group secretly monitored orchards at night after the National Parks and Wildlife Service (NPWS) issued 21 culling licences late last year to local growers suffering crop damage by the bats." One of the final paragraphs in the item has a clearly contrasting viewpoint: "The chief executive of the NSW Farmers' Association, Mr Peter Comensoli, who is an orchardist, said yesterday that the NPWS had taken a responsible approach to the licensing issue." This excellent piece of writing by Bob Beale foreshadowed a major conservation debate that came to a head when the Grey-headed Flying-fox was declared a threatened species in 2002 (Eby and Lunney 2002).

With the witty heading, "Don't come the raw prawn…it's illegal", and photo caption, "The claw and the law… restaurateur Robert Yu will have to be wary of both", journalist Mark Riley in the *Sydney Morning Herald* 24 June 1997 has combined food, invertebrates, animal welfare and the law in a lively story with a great photo.

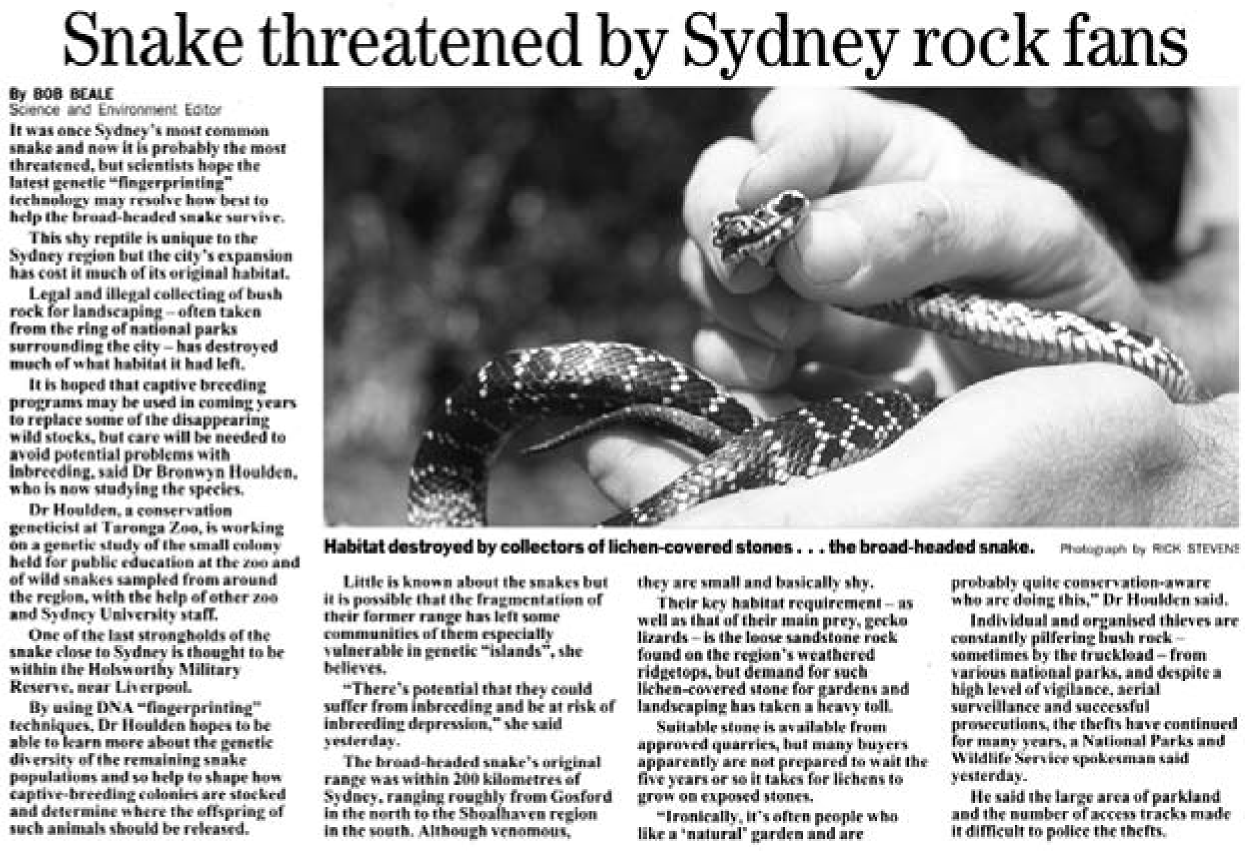
The story may also represent a culture clash, as is evident in the opening paragraphs: "The serving of live lobsters and prawns in dishes regarded as Asian delicacies will be deemed inhumane and bring penalties of up to $10,000 and two years' jail under laws set to be passed in State Parliament. The changes also will outlaw the cooking of live shellfish and set out new regulations in the preparation of crustacean dishes. Also banned will be a Chinese delicacy called 'screaming prawns' or 'drunken prawns', in which live green prawns are soaked in alcohol then set alight. The 'screaming' is the noise the prawns make when set on fire." This imposing page 3 story has many standard journalistic elements, such as conflict, good food and the exotic in Australia. One does not come away from the story with any great sense of the zoological treasure trove in the list of food items, and invertebrates only come to life as they "scream". The screaming prawns mention does give the story a slightly macabre ring, a distancing of the plight of invertebrates, but it has an element of the "throw a koala on the barbie" item.

With an accompanying photo, and under the headline, "Wandering albatross becomes a victim of 'shooting for fun", Greg Roberts in the *Sydney Morning Herald* of 17 September 1997 opens his piece with, " Albatrosses and other seabirds are being shot for sport from fishing boats off Sydney and Wollongong…". Similar concern for cruelty emerges from a little item in the *Daily Telegraph* on the same day. This short unauthored piece has the headline, "Wombat pair hacked to death", and the first sentence expresses a clear sentiment: "The legs of two wombats found hacked to death in a south-west Sydney suburb were probably taken as trophies, according to wildlife experts who were yesterday appalled at the brutal killings." By contrast, in the *Daily Telegraph* of 28 August 1997, under the large headline, "Step on this snail and everybody's happy", is a photo of a snail sliding across a globe of the world, with the caption, "The common garden snail, a pest which was introduced from Europe". The adjacent large headline is, "Kill this one and it could cost you $200,000". The second photo is of a different snail being held between two fingertips and has the caption, "The native snail which does not pose a threat to gardens". Simon Benson reports that, "Gardeners spray them, bait them or crush them beneath their boots. But one species of snail has gained immunity from death – and anyone found killing it faces fines of up to $200,000 or two years in jail. *Meridolum corneovirens*, a once common native snail found in Sydney's western suburbs, has become so threatened that the State Government has listed it as endangered under wildlife protection legislation." Although the story is about an endangered snail and its formal protection, the opening headline and storyline is about killing pest snails. This is not seen as a cruelty issue. Killing pest invertebrates is a publicly acceptable activity that may be carried out by anyone. We are witnessing a zoological divide on a species basis, and arguably putting ourselves in a problem area for management.

"Some not wild on pigs, others claim they're not to be snorted at" is the droll headline in the *Sydney Morning Herald* on the 12 December 1996. There were two accompanying photos, the smaller of the two showing a man with a gun next to his truck with dead pigs dangling from a frame. The larger photo has a man holding a pig (boar) upside down, with a hook through its hocks ready to hang on the frame of his truck. The caption reads, "Bound for Europe…Shooter Mr John Pearce with his latest kill of wild boar that will end up in German Restaurants." Anthony Hoy, Rural Editor, writes that, "A debate is raging between bureaucrats, the game meat industry and its European competitors over the status and origin of an estimated 15 million pigs ranging over 38 per cent of the Australian continent. The central question is whether they are feral pigs or native boar. Some say the wild boar is an introduced feral pest costing Australian agriculture at least $100 million a year and posing a major threat in spreading exotic disease." What is not at issue here is cruelty or shooting pigs. This presents a clear species divide, because pigs and dolphins are a similar size, and pigs and koalas are not that dissimilar that the handling techniques for a cull program would be vastly different. If it had been dolphins or koalas dangling on hooks the article would have been vastly different.

Similarly, a small item in the *Sydney Morning Herald* of 5 February 1997 by David Barber has the headline, "NZ gourmets are getting a taste for possum stew". The opening sentence is clear, "Possums, a protected species in most of Australia but officially declared a pest on this side of the Tasman, are rapidly becoming popular with New Zealand gourmets." So, pest exotic mammals sound like good food. Contrast this conclusion with the *Daily Telegraph* report of 26 July 1997, under the headline, "Move north saves starving koalas". The large photograph has a big koala in the foreground and a man standing nearby looking at the koala. The caption reads, "Farmer Andrew Kelly with one of the endangered Kangaroo Island koalas." The text by Tim Dornin explains the headline: "The NSW Government has agreed to a trial relocation of sterilised koalas from South Australia's Kangaroo Island to save them from starvation because of overcrowding. Environment Minister Pam Allan said the NSW Government and the National Parks and Wildlife Service has agreed to take a small number of koalas and relocate them, probably near Parkes in central NSW. If it proved successful more could be moved, she said. The decision follows concern that the growing koala population on Kangaroo Island can no longer be sustained, and a decision by all Australia's environment ministers to rule out a cull of the animals."

The sequence from stepping on snails, stewing possums or translocating koalas, rather than culling them, let alone throwing them on a barbie, reveals contrasts and inconsistencies in contemporary attitudes to wildlife killing and welfare matters. How we treat animals reflects whether we regard them as food and how we deal with them as pests. The newspapers have not defined these species biases but the apparently passive act of reporting what is happening presents an acceptable societal viewpoint on these matters. We find a recognisable bias towards the killing and eating of foreign animals, especially if they are also a declared pest. The ruling out of the cull of the pest koalas of Kangaroo Island may have something to do with its national iconic status, but it also may well be related to its immense worth as a tourist attraction.



Snake threatened by Sydney rock fans

By BOB BEALE
Science and Environment Editor

It was once Sydney's most common snake and now it is probably the most threatened, but scientists hope the latest genetic "fingerprinting" technology may resolve how best to help the broad-headed snake survive.

This shy reptile is unique to the Sydney region but the city's expansion has cost it much of its original habitat.

Legal and illegal collecting of bush rock for landscaping – often taken from the ring of national parks surrounding the city – has destroyed much of what habitat it had left.

It is hoped that captive breeding programs may be used in coming years to replace some of the disappearing wild stocks, but care will be needed to avoid potential problems with inbreeding, said Dr Bronwyn Houlden, who is now studying the species.

Dr Houlden, a conservation geneticist at Taronga Zoo, is working on a genetic study of the small colony held for public education at the zoo and of wild snakes sampled from around the region, with the help of other zoo and Sydney University staff.

One of the last strongholds of the snake close to Sydney is thought to be within the Holsworthy Military Reserve, near Liverpool.

By using DNA "fingerprinting" techniques, Dr Houlden hopes to be able to learn more about the genetic diversity of the remaining snake populations and so help to shape how captive-breeding colonies are stocked and determine where the offspring of such animals should be released.

Habitat destroyed by collectors of lichen-covered stones . . . the broad-headed snake. Photograph by RICK STEVENS

Little is known about the snakes but it is possible that the fragmentation of their former range has left some communities of them especially vulnerable in genetic "islands", she believes.

"There's potential that they could suffer from inbreeding and be at risk of inbreeding depression," she said yesterday.

The broad-headed snake's original range was within 200 kilometres of Sydney, ranging roughly from Gosford in the north to the Shoalhaven region in the south. Although venomous, they are small and basically shy.

Their key habitat requirement – as well as that of their main prey, gecko lizards – is the loose sandstone rock found on the region's weathered ridgetops, but demand for such lichen-covered stone for gardens and landscaping has taken a heavy toll.

Suitable stone is available from approved quarries, but many buyers apparently are not prepared to wait the five years or so it takes for lichens to grow on exposed stones.

"Ironically, it's often people who like a 'natural' garden and are probably quite conservation-aware who are doing this," Dr Houlden said.

Individual and organised thieves are constantly pilfering bush rock – sometimes by the truckload – from various national parks, and despite a high level of vigilance, aerial surveillance and successful prosecutions, the thefts have continued for many years, a National Parks and Wildlife Service spokesman said yesterday.

He said the large area of parkland and the number of access tracks made it difficult to police the thefts.

Figure 2 A pun in the headline, a photo of the juxtaposition of dangerous snake fangs and a human hand accompanied by a story with conservation depth - the conservation of bush rock and snake habitat – makes this a great wildlife story in the print media. The article and photo reproduced from the *Sydney Morning Herald* with permission of the SMH and the journalist.

A catchy headline – "Snake threatened by Sydney rock fans" – draws attention to reporter Bob Beale's *Sydney Morning Herald* item of 22 March 1997 in which he makes a case for protecting the threatened broad-headed snake from the pilferers of the bush rock which is its habitat (Figure 2). Such quality writing is all too rare, but then we are biased, we are scientists and work for NPWS.

"Free as a bird" appeared in giant letters over a great photo of one of our colleagues holding a seabird on a hilltop on an island. This large crisp photo bears the caption, "Research officer Nicholas Carlile with a young Gould's petrel…driven to near extinction by the impact of rabbits on Cabbage Tree Island." The story by Simon Benson and Heather Gilmore in the *Daily Telegraph* of 11 August 1997 has the title, "Science saves rare species from rabbit rivals". The story opens as follows, "The world's rarest sea bird and its greatest pest have been engaged in a turf war on a tiny NSW island for the past 100 years." Paragraph 3 is equally sharp in style, "But in a first for science, researchers have been recruited to bring an end to the battle – with the aid of the deadly rabbit calicivirus." As with Bob Beale's item, this story identifies a clear problem, picks a solution, and puts scientists in the centre of the story.

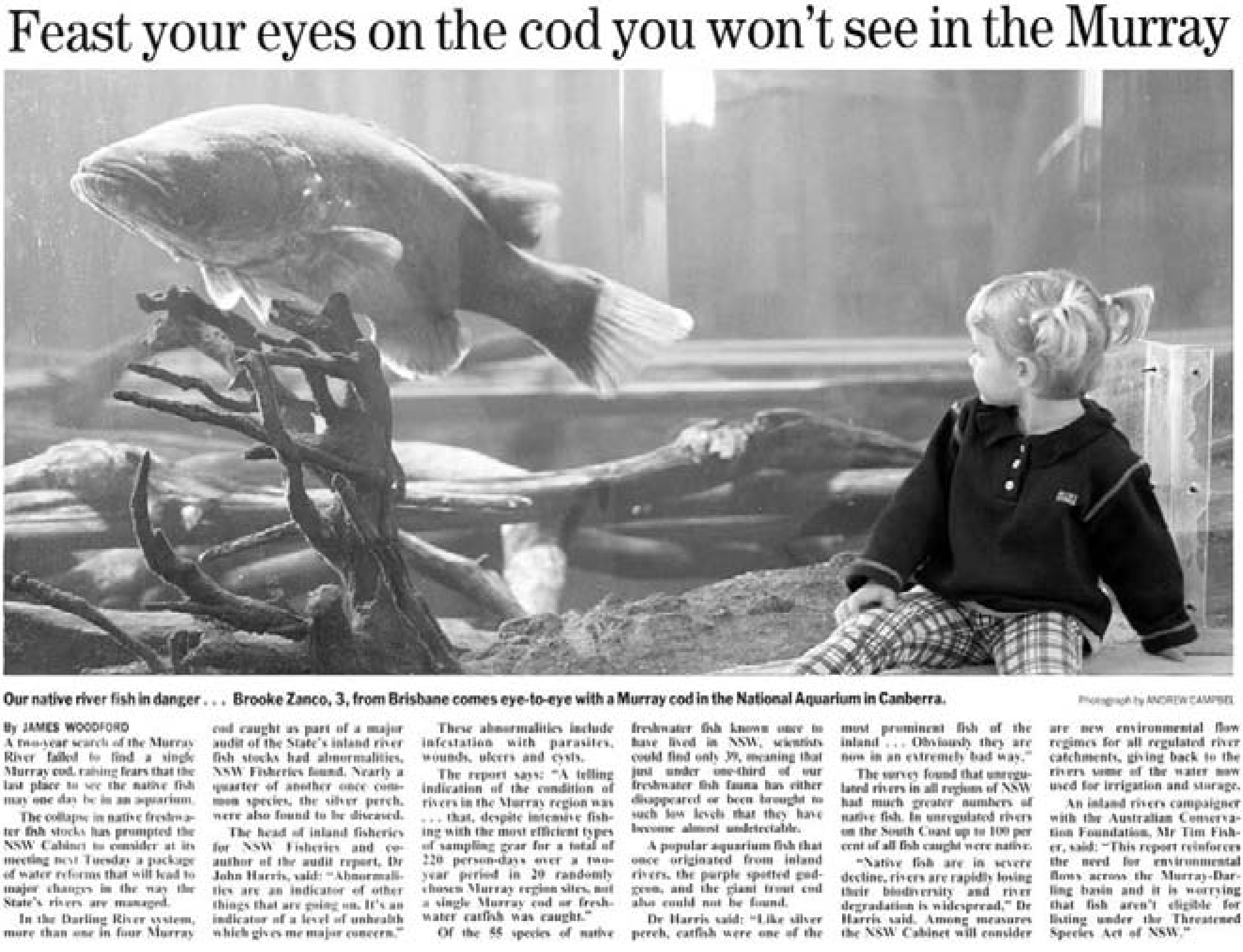
Wildlife conservation issues also draw a regular spot, especially if linked to a bigger issue such as water rights and global warming. "Birds doomed by veto over water" is the headline in a small article in the *Sydney Morning Herald* of 4 February 1997, where Greg Roberts reported that "Hundreds of waterbirds have perished after their breeding swamps along the Murray River in western NSW were drained at the insistence of the Victorian Government." The water/waterbirds issue was a major feature, with two photos, in the *Sydney Morning Herald* of 21 May 1997 in a piece by Murray Hogarth under the heading, "Bird's eye view of how climate is changing our rivers." The caption to the main photo, with waterbirds flying over a swamp, tells the story succinctly, "Macquarie Marshes, the breeding grounds to a spectacular variety of bird life, could be severely hit by global warming."

Killing wildlife or being killed by wildlife is a regular drawcard judging by the recurrent appearance of such stories. Headlines are often enough to make this point. For example: "Who's shooting the fur seals at Jervis Bay?" (*Sydney Morning Herald* 9 May 1997); "Harbour penguin slaughter prompts call for ban on jet skis" (*Sydney Morning Herald* 24 January 1997); "Woman saved from crocodile" (*Sydney Morning Herald* 22 February 1997) and "Dingoes attack boy at island resort" (*Sydney Morning Herald* 21 March 1997). Two months later, in the *Sydney Morning Herald* of 23 May 1997, there was a minor item entitled, "Dingoes facing extinction". The opening sentence reported that, "Australia's native dog, the dingo, may disappear across most of the country within 50 years because of interbreeding with wild dogs, a veterinary expert has warned." This minor piece foreshadowed a major debate, which became the topic for a forum for the Royal Zoological Society of NSW (Dickman and Lunney 2001).

The visual effects of a great photo can appear to be a main reason for a story. In the *Sydney Morning Herald* 18 June 1997, the brilliant photo by Rick Moir of a diver feeding a fish to a shark was taken from the underside and the stunning effect comes from the silhouette and the abstract shapes formed by distortions produced by the water and glass. The caption to the photo gives a clue as to the position of the photographer: "Getting the lowdown…inhabitants of the Sydney Aquarium win a spot in the documentary." The accompanying story by Julie Delvecchio is entitled, "Say ah as film gets a shark's eye view of Sydney". The story opens with, "An early-morning shark feed at the Sydney Aquarium will be one of the images beamed into 110 million homes when a documentary on Sydney goes to air around the world in October." There is nothing about sharks in the text, and no science involved, but the idea that Australia has sharks, is a marine-oriented nation and uses a shark as a national icon is itself intriguing. Generally, most photos we examined were part of a good wildlife story, and not separate. We do recognise, as in this shark example, that as a species becomes more iconic, the possibility rises that a wildlife story may not be attached. As zoologists, we have a visual sense of the world. Seeing wildlife is one of the initial attractions to the discipline and remains part of the glue that keeps us researching and conserving. We do not feel odd in this sense, and the visual power of the accompanying photo, first to attract a reader, then to convey a message, is a perpetually powerful one.

A forceful example of the juxtaposing of a great photo and a great piece of writing was on the front page of the *Sydney Morning Herald* of 16 August 1997. A huge picture, in colour, showed a very large fish in a fish tank, with a little girl looking through the glass at the magnificent fish. Andrew Campbell's superb photo was centre page. It was an uncluttered photo, the three-year old girl provided both scale – the huge fish was bigger than her – and human interest. Also, the angle of the girl's body (she was leaning back and supporting herself with one hand behind her), gives the reader a sense of the awe that the fish inspired. Further, the photo was not sensationalising the encounter.

The title above the piece was, "Feast your eyes on the cod you won't see in the Murray" (Figure 3). The caption to the photo adds to the story, "Our native river fish in danger…Brooke Zanco, 3, from Brisbane comes eye-to-eye with a Murray cod in the National Aquarium in



Feast your eyes on the cod you won't see in the Murray

Our native river fish in danger . . . Brooke Zanco, 3, from Brisbane comes eye-to-eye with a Murray cod in the National Aquarium in Canberra.

Photograph by ANDREW CAMPBEL

By JAMES WOODFORD

A two-year search of the Murray River failed to find a single Murray cod, raising fears that the last place to see the native fish may one day be in an aquarium.

The collapse in native freshwater fish stocks has prompted the NSW Cabinet to consider at its meeting next Tuesday a package of water reforms that will lead to major changes in the way the State's rivers are managed.

In the Darling River system, more than one in four Murray cod caught as part of a major audit of the State's inland river fish stocks had abnormalities, NSW Fisheries found. Nearly a quarter of another once common species, the silver perch, were also found to be diseased.

The head of inland fisheries for NSW Fisheries and co-author of the audit report, Dr John Harris, said: "Abnormalities are an indicator of other things that are going on. It's an indicator of a level of unhealth which gives me major concern."

These abnormalities include infestation with parasites, wounds, ulcers and cysts.

The report says: "A telling indication of the condition of rivers in the Murray region was . . . that, despite intensive fishing with the most efficient types of sampling gear for a total of 220 person-days over a two-year period in 20 randomly chosen Murray region sites, not a single Murray cod or freshwater catfish was caught."

Of the 55 species of native freshwater fish known once to have lived in NSW, scientists could find only 39, meaning that just under one-third of our freshwater fish fauna has either disappeared or been brought to such low levels that they have become almost undetectable.

A popular aquarium fish that once originated from inland rivers, the purple spotted gudgeon, and the giant trout cod also could not be found.

Dr Harris said: "Like silver perch, catfish were one of the most prominent fish of the inland . . . Obviously they are now in an extremely bad way."

The survey found that unregulated rivers in all regions of NSW had much greater numbers of native fish. In unregulated rivers on the South Coast up to 100 per cent of all fish caught were native.

"Native fish are in severe decline, rivers are rapidly losing their biodiversity and river degradation is widespread," Dr Harris said. Among measures the NSW Cabinet will consider are new environmental flow regimes for all regulated river catchments, giving back to the rivers some of the water now used for irrigation and storage.

An inland rivers campaigner with the Australian Conservation Foundation, Mr Tim Fisher, said: "This report reinforces the need for environmental flows across the Murray-Darling basin and it is worrying that fish aren't eligible for listing under the Threatened Species Act of NSW."

Figure 3 A wonderful combination of an outstanding photo and compelling text made this article a front page wildlife and the media story. The original photograph on the front page of the SMH was in colour. The article and photo reproduced from the *Sydney Morning Herald* with permission of the SMH and the journalist.

Canberra." James Woodford's writing comes straight to the point in his opening sentence, "A two-year search of the Murray River failed to find a single Murray cod, raising fears that last place to see the native fish may one day be in an aquarium." Woodford's story explains this sentence: "The head of inland fisheries for NSW and co-author of the audit report, Dr John Harris, said…that despite intensive fishing with the most efficient types of sampling gear for a total of 220 person-days over a two year period in 20 randomly chosen Murray region sites, not a single Murray cod or freshwater catfish was caught." The story, all of which is on page one, contains some other equally chilling sentences; "Of the 55 species of native freshwater fish known once to have lived in NSW, scientists could find only 39, meaning that just under one-third of our fish fauna has either disappeared or been brought to such low levels that they have become almost undetectable." The conservation message emerged: "The survey found that unregulated rivers in all regions of NSW had much greater numbers of native fish. In unregulated rivers on the South Coast up to 100 per cent of all fish caught were native." All the elements of good writing, good photo and good science had combined. It was a pleasure to open the paper and see such a great presentation.

Science being reported for its own sake is rare, although to our sense of excitement, what was reported was great. Leigh Dayton's skill is apparent in such reports as, "Early Aussies may have been real rats" *Sydney Morning Herald* of 30 January 1997, where humour in the ambiguous headline is quickly acknowledged as the story unfolds; "The horde of rats and mice that scuttled down the gangplank of Captain Arthur Phillip's flagship, HMS Sirius, may not have been the first European style rodents to land on the Fatal Shore. Relatives of their distant ancestors may have been scurrying about 5 million years earlier, …Fossil rat expert Mr Henk Godthelp, of the University of NSW, says the tiny teeth [from the Riversleigh World Fossil Site]… come from the first members of primitive rodents…". Leigh Dayton not only supports zoological research, but is also a rare journalist who supports research institutions, as is evident in her story, "Museum bats may hold clue to deadly virus" *Sydney Morning Herald* of 20 January 1997. The report opens with, "A collection of preserved flying foxes held at the Museum of Victoria may help reveal the origin of the newly discovered bat lyssavirus…" While we are keen to see much more of the style of writing that not only picks a good story, but also reports on the research process which includes both the researcher and the research institution, it is not what the papers see as being of prime interest.

Comments, conclusions and cautions

A major topic of study would be to examine to what extent the papers determine rather than reflect public interest and attitudes in wildlife matters. We recommend this to media students and wildlife educators as a serious subject for sociological study. An important start in this field is acknowledged in a speech, on 20 November 1997, by Joe Baker who was retiring as President of FASTS (Federation of Australian Scientific and Technological Societies, which promotes science and technology for the social, environmental and economic benefit of Australia) (www.usyd.edu.au/fasts/1997/Baker97.html). Joe Baker stated: "We should not forget that a survey earlier this year of 1060 people from across the nation shows that Australians would rather follow media stories about science, medicine and technology than sport, crime or politics. It was conducted by AGB McNair on behalf of CSIRO. The survey showed that twice as many Australians want to read about science as sport or politics. Science beats crime and employment as a popular media topic. Science and technology are vital to the lives of ordinary Australians. It is our responsibility to make our communication as fresh and exciting as the S&T are to us! On receipt of that survey result we contacted editors of major Australian media outlets. It is up to each of us in FASTS to capitalise on such demonstrated public need, but it is also up to each of you to take advantage of this opportunity in your community." This reporting by Baker on a media survey, and his comments on it, do give a major clue that wildlife scientists and their departments (university or government) could have taken a much more active role than appears to have been the case in the reporting of material we have identified over the same period in two major daily newspapers – *Sydney Morning Herald* and *Daily Telegraph* – over the year to October 1997.

The values explicitly and implicitly contained in news items such as we have selected could also be a major element of investigation. This would also require a study of the bureaucratic structure of the newsroom, how journalists are rewarded, and how values are judged. We were able, with a straightforward analysis from our position as zoologists, to discern themes, species and issues that appeared in the paper. As public servants, we are part of a large bureaucracy and can readily imagine that similar rules, both written and unwritten, are part of a major media organisation. There may be agenda setting, blocks to certain lines of ideas and a fear of challenging the *status quo*. Walking the media tightrope on a daily basis requires a person of special skills, and if an interest in science and a concern for the conservation of biodiversity can survive that daily ordeal, then we are lucky. In fact, when we look at the very best works from such journalists as Bob Beale, Leigh Dayton, James Woodford and Simon Benson, we have been well served. We simply want more of it. One difficulty is in providing feedback to the journalists, editors and the media proprietors of the value of such journalists and the material that they select. We can hope that they, and the budding journalists following in their footsteps, read the *Australian Zoologist* and use some of the material and follow up on the ideas.

Most articles in the newspapers reported incidents, but not controversy. The data set examined showed that where the animals featured they were only infrequently linked to dominant environmental themes, such as greenhouse, pollution and forestry issues. The mention of scientists was intermittent and of zoologists was rarer. Articles reporting zoological research, although infrequent, were supportive. The central issues of biodiversity rarely surfaced in the media in the context of wildlife reporting, although there was mention of laws surrounding wildlife matters. Biodiversity as an issue appears in a legal context. The concern is not about biodiversity, but the legal ramifications for people such as developers, chefs, or those running institutions. In other words, comments on biodiversity are rare and if you just read the wildlife articles in the daily papers you would not know that biodiversity conservation was an important theme in society.

The following conclusions were drawn from this investigation: there is a sustained media interest in animals; animal welfare is the dominant theme; risk to humans was the second most important issue; and scientists were mentioned reasonably often – about one third of the time. Australian, rather than international animals and issues, dominated the reporting. Mammals predominated, followed by birds, reptiles and fish, while invertebrates were poorly represented and most mentions were hostile.

In conclusion, we believe that there are ample opportunities for zoologists to present their story in the media but they will need to be succinct. For a journalist, there is a wider world of interest yet to be explored. The reporting that is done, though, is lively and this points to great potential in this area of journalism.

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